RECOMMENDATIONS FOR ADDRESSING USED TIRES IN CALIFORNIA

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INTRODUCTION

Waste tires present a major environmental problem across the globe today. It is estimated that 2 to 3 billion scrap tires have been stockpiled or dumped throughout the country, while more than 270 million more used tires are generated each year. Cleaning up these piles and reassessing the continual generation of waste tires is essential to prevent health risks and degradation of the environment.

Waste tires, particularly in piles, pose serious health risks to humans and the environment. When improperly stockpiled or illegally dumped in large quantities, toxic materials from tires leach into the ground, and the piles create an ideal breeding ground for disease-carrying rodents and mosquitoes. They also pose a threat for massive fires. The unique challenges inherent to tire fires have become all too clear over the past few years. When ignited, large tire piles are difficult to extinguish and may burn for months, releasing enormous amounts of heat, toxins, and oil into the air and surrounding environment, costing millions of dollars to mitigate.

When viewed as a re-usable material, waste tires offer a wealth of important resources. On the average, it takes 22 gallons of crude oil, steel, natural rubber, a large amount of energy, and other resources to produce one single tire. These valuable resources can, and should, be recaptured and reused in utile products and processes, rather than left in wasteful and dangerous stockpiles.

IDENTIFYING OPPORTUNITIES FOR ADDRESSING WASTE TIRES IN CALIFORNIA

There are numerous opportunities to address the tire problem in California. The State of California has shown great leadership in waste reduction and has made great strides over the last decade in increasing the rate of tires diverted from landfills from 34% to 64%. Such continued efforts will be necessary in order to completely resolve California's tire problem. Any new efforts should focus on the two most important areas: market development and clean-up of existing piles. Market development would be valuable for both progressive tire manufacturers and scrap tire businesses, and could take the form of financial support, state and federal purchasing power, convening power, education, research, or aid in promotion of products.

The following provides a quick overview of how such efforts, focusing on market development and/or pile clean-up, could be successful. For the purpose of clarity, the efforts have been separated out into sections. Multiple efforts could be undertaken at the same time, and in conjunction with one another.

OPTIONS AT THE DESIGN LEVEL

Issue:

The first opportunity for addressing waste tires is at the level of design. Though there has been some research and development in this arena, increased support is needed for alternative tire manufacturers that design for durability, long life, increased recycled content, and reduced environmental impacts. Such support includes funding for increased research in this area, and for pilot and demonstration projects that show the value and dependability of these products.

One example of the kind of work being done at the design level is in the cooperative effort being made between the State of North Carolina and Continental General Tire to manufacture tires with 25% recycled rubber (as Continental General's tires currently contain only 6% recycled rubber and *most* tires contain no recycled content). The State of North Carolina has given Continental General Tire $1.2 million to fund this effort.

Support is also necessary in the form of public education and assurance about recycled-content tires, as past experience has shown the public's perception of recycled products as being generally less safe and inferior to comparable products. Finally, increased efforts are necessary in educating the public on the importance of proper tire care and maintenance, in order to enable tires to be useful for longer periods of time.

Another important opportunity at the level of design is in increasing manufacturer responsibility for recycling used tires. State or Federal government requirements, incentives or opportunities encouraging dealers to set up collection centers for proper recycling would be useful. Since most customers already leave their old tires with dealers, it is reasonable for dealers to be required to ship the tires on to certified recyclers. The cost could be passed through to the customer in the price of the tire.

> **Recommendation:** Use State and Federal resources to provide aid to tire manufacturers that design for increased product longevity and durability, and increased use of recycled products in manufacture. This aid could be in the form of research and demonstration projects, market promotion of environmentally preferable tires, and public education about proper tire care and maintenance.
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> **Recommendation:** Require or encourage manufacturers/dealers to set up collection centers for used tires, and to ship such tires on to certified recyclers.

DEVELOPMENT OF WASTE TIRE MARKETS

Issue:

Waste tires offer a wealth of resources for new product and end-use markets. Many of these emerging markets need financial and market support to get started. The costs of tire collection, sorting, and processing are high. In addition, negative perceptions of recycled tire products often exist. Finally, many of these markets are not yet able to compete with cheaper markets that rely on subsidized virgin resources. Some of the largest markets for used tires which could benefit from increased support include:

- ***Re-Use/ Retreading of Tires*** **-** This is probably the best possible outlet for used tires, as it puts tires back into their original intended use. Quite often tires that are thrown out may only need slight repairs or retreading to make them useful again. Retreading a tire takes 1/3 of the amount of petroleum, fewer virgin resources, and far less energy than producing a new tire, yet the tire lasts just as long as a new one. In fact, truck tires can be retreaded multiple times, extending the life of a tire far longer. Retreaded tires are also cheaper than new tires since fewer resources go into their production. What is clearly needed in re-used and retreaded tire markets is aid in selling the idea to consumers, as many are under the impression that re-treaded tires are of lower quality, less safe, and more likely to blow out than comparable new tires. The market needs help in changing public perceptions, so that retreads may be seen as being just as safe as new tires, yet more beneficial environmentally and economically. Another potential aid to the re-use/retread tire market is the creation of incentives for both producers and consumers for the production and purchase of reused and retreaded tires. State and Federal purchasing power have already been embraced toward this end, as Federal agencies are currently required to purchase retreaded tires. State and Federal procurement guidelines could be made stronger, encouraging even higher levels of recyclability and higher environmental standards.

- ***Whole or Shredded Tire Markets*** **-** The second least energy-intensive market for used tires is in whole or shredded tires that are made into products other than new tires. Included in this market are civil engineering uses, such as highway sound barrier walls, lightweight fill, leach field aggregate, slope stability and erosion control; and tire mulch. One outlet for this market is the use of end-of-life tires by the Department of Transportation, the Army Corps of Engineers, and other similar groups for civil engineering and other applications.

- ***Crumb Rubber/Rubberized Asphalt*** **-** The crumb rubber tire market has been a very successful option for used tires. It has the potential for a very high diversion rate, particularly for rubberized asphalt. As mentioned previously, the State of California increased its diversion of tires from landfill disposal from 34% to 64% between 1992 and 1999. This was made possible largely by promoting the use of crumb and shredded tire products/uses. In regards to rubberized asphalt, estimates have shown that 500 to 2000 tires are used per lane mile using rubberized asphalt. It has furthermore been shown that if a

small percentage of US highways were re-paved using rubberized asphalt, it would be possible to use up all current scrap tires generated. Again, the market needs help in convincing consumers about the safety and quality of the products, and in overcoming economic hurdles. One major challenge with rubberized asphalt is the additional initial cost of using crumb rubber (arising from the energy-intensive processing required to produce crumb), rather than more traditional concrete products that use subsidized virgin materials. Increased research and education on proper application methods of crumb rubber asphalt would result in reduced long range costs and better cost-to-benefit ratios. It would also help show the value of utilizing an existing waste stream in the production of asphalt and other crumb rubber products, such as playground covers, tracks, mats, carpet pads, and soil amendments, rather than virgin resources in the production of such products.

- ***Tire-Derived Fuel -*** Another use for scrap tires is fuel. Tire-derived fuel has a higher Btu content than coal and elsewhere in the country is the leading method of recovering value from tires. In California, the market is still struggling to compete with more traditional fuels due to concerns about increased releases of air pollution. Some advocate the instatement of a carbon tax at some level.

  Recommendation: Increase efforts in public education to change negative perceptions about recycled products.

  Recommendation: Require state highways to use rubberized asphalt for an increased percentage of projects.

  Recommendation: Create economic incentives that make recycled products more valuable.

  Recommendation: Increase the utilization of State and/or Federal purchasing power to buy scrap tire products.

  Recommendation: Increase financial support in the form of grants and pilot/demonstration projects.

  Recommendation: Reduce or eliminate subsidization of virgin materials industries.

  Recommendation: Instate a carbon tax at either a State or Federal level to help tire-derived fuel compete with more traditional fuel sources.

ADDRESSING TIRE PILES

Issue:

Though market development is critical in diverting annual used tires from landfills and in utilizing their value as resources, it does not address the existing piles in California and the rest of the U.S.

In fact, the tires that supply scrap tire markets come almost entirely from the U.S.'s annual generation of used tires. What is more, these piles sometimes are not included under current local tire initiatives, or if they are, there just are not enough resources to properly address them. Increased State and Federal aid would be helpful in cleaning up these piles once and for all. Following are a couple of approaches that could be taken to address the problem of tire piles in California.

Recommendation: Implement a State Tire Pile Reimbursed Clean-Up Program - Though many states throughout the nation, including California, have existing tire programs, regulations and fees, the funds within these programs are sometimes not adequate to completely eliminate piles throughout the state. An aggressive clean-up program that utilizes Federal support combined with State, local and industrial cooperation would be helpful to start eliminating this problem. A reimbursement program would complement California's current scrap tire management program.

The State's inventory of existing tire piles is a critical first step to a reimbursed clean-up program. Next, a scrap tire clean-up fund strictly for the mitigation and recycling or disposal of these piles could be established. The clean-up fund would augment the state's existing remediation contract to clean up piles.

The funding for such a program could come from a combination of Federal, State and industry sources. In a collaborative effort, the clean-up funds could be administered for beneficial scrap tire uses, by way of an end-user reimbursement program, wherein waste tire pile cleaners and users would receive a percentage of the tire fund to help cover their costs.

The overall plan would entail the reimbursed shredding of scrap tires from the piles, and their transportation to various scrap tire markets, recyclers, or, as a last resort, to approved disposal facilities. The State of California already employs enforcement and aerial surveillance programs to monitor tire pile sites and take enforcement action as necessary. The state is monitored for signs of any new illegal dumping activities and sites. Combined with a reimbursement program, this component could help ensure that current and future tire piles are eliminated.

Such an initiative could greatly reduce the number of tire piles in California. Both the State of Virginia and the State of Maryland have met great success with tire fund programs such as this. The State of Virginia's program saw the clean up of 423 piles between 1993 and 1999. However, though their program has been successful, it is still underfunded ($0.50 per tire), and thus has not been able to completely eliminate the problem. The State of Maryland's scrap tire program, which charges $2 per tire has almost completely eliminated scrap tire piles throughout the state. This type of program would not be difficult to undertake in California since the infrastructure for abatement, processing, transportation, and disposal of tires already exists.

Recommendation: Reprogram Oil Pollution Assistance (OPA) Money - The Federal Oil Pollution Act, passed in 1990, was established to prevent and respond to actual or threatened

releases of petroleum to waters of the United States. These funds can be used to clean up tire piles, but only if they are burning or pose a pyrolitic threat to surface waters. Expanding the availability and uses of OPA funds so that they may be used in a preventative manner to clean up tire piles *before* they catch on fire, would make these Federal funds more easily available.

LANDFILLED TIRES

Issue:

Used tires offer a wide variety of resources for new products and end-uses. The disposal of these tires in landfills uses increasingly limited space, and is a waste of resources. In addition, landfilling is often artificially more economical than recycling, making it difficult for recycling and re-use centers to compete for the supply of used tires. It is important to divert used tires from the waste stream, to treat them as a valuable resource, and to encourage their use in other markets. In implementing EPA's waste reduction hierarchy (reduce, reuse, recycle/buy recycled, dispose), landfilling tires should be avoided whenever possible. But even when they are landfilled, some options may be employed to reduce waste.

California requires the reduction in size of a tire by cutting, shredding, or baling before it can be disposed in a landfill. This has slightly increased the cost of disposal; however, over 11 million tires still go to landfill disposal rather than reuse or recycling each year. The creation of landfill bans or restrictions is one way that some states have gone to further facilitate the recycling of used tires instead of continuing to throw them away. However, it is important to note that such an effort would only be effective if used tire markets are promoted in conjunction with landfill restrictions or bans. Otherwise an increase in illegal disposal and litter, or movement of scrap tires to states without bans, would be highly likely.

Another option to discourage landfilling of tires would be to put a surcharge on tires at landfills that would make landfilling less attractive, and the fee could go toward the support of tire reuse and recycling efforts.

Recommendation: Re-examine government subsidies that make recycling less competitive.

Recommendation: Some states have chosen to restrict or ban whole and/or cut tires from landfills as a means of diverting used tires from the waste stream and promoting their value as a resource.

Recommendation: Implement a surcharge on tires at landfills and use the funds generated to develop markets for tires.